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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/649,314      | 08/26/2003  | John S. Toeppen      | IL-11053            | 5399             |

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EXAMINER

CRUZ, MAGDA

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2851

DATE MAILED: 03/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/649,314

Applicant(s)

TOEPPEN, JOHN S.

Examiner

Magda Cruz

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-37 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/26/03 & 7/19/04.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “zonal plate” (claims 4, 7 and 18-19), “folded geometry” (claims 6, 17 and 31), “square geometry” (claims 8 and 20) and “at least three pairs of projection displays” (claim 12) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheets" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

### ***Specification***

3. The disclosure is objected to because of the following informalities: there is no description of the "folded geometry" and "square geometry".

Appropriate correction is required.

4. The abstract of the disclosure is objected to because on line 7, there is a spelling error: Fresnels'. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 5-14, 17-23, 25-26, 28-29, 31-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Ezra et al.

Ezra et al. (US Patent Number 5,703,717) discloses:

- Regarding claim 1, 12 and 13, an autostereoscopic projection viewer comprising one or more pairs of projector lenses (28) configured to correspond to one or more pairs of respective projection displays (31), an image corrector plate (i.e. SLM) arranged about an image plane of each said pair of projector lenses, wherein said image corrector plate is capable of correcting for predetermined optical aberrations (column 2, lines 65-67); and a field lens (37), wherein said field lens (37) is arranged at a predetermined distance from said projector lenses and said image corrector plate to produce one or more predetermined magnified stereoscopic aberration corrected images of said projection displays (column 4, line 64 through column 5, line 7) at predetermined one or more pairs of optical eyezones (31).
- Regarding claims 4, 7 and 18-19, the field lenses include a zonal plate (33).
- Regarding claims 5, 26 and 29, the optical aberrations include at least one from: coma, spherical, astigmatism, distortion, curvature of field and chromatic (column 2, lines 65-67).
- Regarding claims 6, 17 and 31, the viewer includes a folded geometry (Figure 11).
- Regarding claims 8 and 20, the projector lenses (28a, 28b) have a square geometry (Figure 11).

- Regarding claims 9, 22 and 32, the projection displays include at least one from: CRT's, transparencies, liquid crystal spatial light modulators, transparencies, plasma sources, digital light projectors, flat panel monitors, photographs (column 1, lines 50-53).
- Regarding claims 10, 23 and 35, the transmission displays include one or more computer generated images (column 2, lines 34-37).
- Regarding claims 11 and 37, the images include keystone correction (column 2, lines 65-67).
- Regarding claims 14 and 33, the viewer includes an optical diffuser (35).
- Regarding claims 21, the viewer includes a lenticular array (34, 36), said array having a plurality of lenticules extending laterally such that optical rays directed from said projection displays are displaced vertically (column 4, lines 21-25).
- Regarding claim 25, an autostereoscopic projection method, comprising optically relaying images from one or more pairs of projection displays to one or more pairs of optical eyezones, wherein one or more pairs of stereoscopic images as seen by the unaided human eye are produced (column 1, lines 6-15); and correcting optical aberrations produced by said optically relaying images (column 2, lines 61-67).
- Regarding claim 28, the method includes an image corrector plate (i.e. SLM, column 2, lines 65-67).

- Regarding claim 34, the method includes a lenticular array (column 4, lines 11-13).
- Regarding claim 36, the optical relay includes eyebox projection (column 3, lines 35-41).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 15-16, 27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ezra et al. in view of Mantravadi et al.

Ezra et al. (US Patent Number 5,703,717) teaches the salient features of the present invention, except (claims 2, 16 and 30) a volume hologram, (claim 15) an image corrector plate capable of being constructed as a holographic optical diffuser, and (claim 27) wherein a holographic zonal plate is arranged to correct for chromatic optical aberrations. However, Ezra et al. discloses two field corrections lenses (37 and 61) wherein a single image is generated by the angular amplifying screen at the observer plane (column 4, line 67 through column 5, line 1).

Mantravadi et al. (US Patent Number 5,206,499) discloses a volume hologram (26, 32), an image corrector plate capable of being constructed as a holographic optical

diffuser (column 5, lines 22-25), and wherein a holographic zonal plate is arranged to correct for chromatic optical aberrations (column 3, lines 36-39).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the holograms disclosed by Mantravadi et al. in combination with Ezra et al.'s invention, for the purpose of correcting chromatic aberrations of magnification to ensure high contrast.

9. Claims 3-4 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ezra et al. in view of Biles et al.

Ezra et al. (US Patent Number 5,703,717) teaches the salient features of the present invention, except (claims 3 and 24) a pair of Fresnel lenses adapted to operate collectively as a field lens. However, Ezra et al. discloses a Fresnel field lens (37).

Biles et al. (US Patent Number 5,355,188) discloses a pair of Fresnel lenses (16, 30) adapted to operate collectively as a field lens.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the pair of Fresnel lens disclosed by Biles et al. in combination with Ezra et al.'s invention, for the purpose of providing a method and apparatus for projecting a distortion-free image (column 3, lines 66-68).

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.



Bonnet (US Patent Number 4,621,897) discloses an optical apparatus and a method of visualizing enlarged and stereoscopic images of objects.

Putilin (US Patent Number 6,429,913 B2) teaches the use of a hologram to compensate chromatic aberrations.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magda Cruz whose telephone number is (571) 272-2114. The examiner can normally be reached on Monday through Thursday 8:00-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RODNEY FULLER  
PRIMARY EXAMINER



Magda Cruz  
Patent Examiner  
March 23, 2005